Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Perinatal care: percentage of nulliparous women with a term, singleton baby in a vertex position delivered by cesarean birth.

Source(s)

Specifications manual for Joint Commission national quality measures, version 2016A. Oakbrook Terrace (IL): The Joint Commission; Effective 2016 Jul 1. various p.

Measure Domain

Primary Measure Domain

Related Health Care Delivery Measures: Use of Services

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of nulliparous women with a term, singleton baby in vertex position delivered by cesarean birth.

Rationale

The removal of any pressure to not perform a cesarean birth has led to a skyrocketing of hospital, state and national cesarean birth (CB) rates. Some hospitals now have CB rates over 50%. Hospitals with CB rates at 15% to 20% have infant outcomes that are just as good and better maternal outcomes (Gould et al., 2004). There are no data that higher rates improve any outcomes, yet the CB rates continue to rise. This measure seeks to focus attention on the most variable portion of the CB epidemic, the term labor CB in nulliparous women. This population segment accounts for the large majority of the variable portion of the CB rate and is the area most affected by subjectivity.

As compared to other CB measures, what is different about nulliparous term singleton vertex (NTSV) CB

rate (low-risk primary CB in first births) is that there are clear cut quality improvement activities that can be done to address the differences. Main et al. (2006) found that over 60% of the variation among hospitals can be attributed to first birth labor induction rates and first birth early labor admission rates. The results showed if labor was forced when the cervix was not ready the outcomes were poorer. Alfirevic, Edwards, and Platt (2004) also showed that labor and delivery guidelines can make a difference in labor outcomes. Many authors have shown that physician factors, rather than patient characteristics or obstetric diagnoses, are the major driver for the difference in rates within a hospital (Berkowitz et al., 1989; Goyert et al., 1989; Luthy et al., 2003). The dramatic variation in NTSV rates seen in all populations studied is striking according to Menacker (2005). Hospitals within a state (Coonrod et al., 2008; "Utilization rates," 2006) and physicians within a hospital (Main, 1999) have rates with a 3-5 fold variation.

Evidence for Rationale

Alfirevic Z, Edwards G, Platt MJ. The impact of delivery suite guidelines on intrapartum care in 'standard primigravida'. Eur J Obstet Gynecol Reprod Biol. 2004 Jul 15;115(1):28-31. PubMed

Berkowitz GS, Fiarman GS, Mojica MA, Bauman J, de Regt RH. Effect of physician characteristics on the cesarean birth rate. Am J Obstet Gynecol. 1989 Jul;161(1):146-9. PubMed

Coonrod DV, Drachman D, Hobson P, Manriquez M. Nulliparous term singleton vertex cesarean delivery rates: institutional and individual level predictors. Am J Obstet Gynecol. 2008 Jun;198(6):694.e1-11; discussion 694.e11. PubMed

Gould JB, Danielsen B, Korst LM, Phibbs R, Chance K, Main E, Wirtschafter DD, Stevenson DK. Cesarean delivery rates and neonatal morbidity in a low-risk population. Obstet Gynecol. 2004 Jul;104(1):11-9. PubMed

Goyert GL, Bottoms SF, Treadwell MC, Nehra PC. The physician factor in cesarean birth rates. N Engl J Med. 1989 Mar 16;320(11):706-9. PubMed

Luthy DA, Malmgren JA, Zingheim RW, Leininger CJ. Physician contribution to a cesarean delivery risk model. Am J Obstet Gynecol. 2003 Jun;188(6):1579-85; discussion 1585-7. PubMed

Main EK, Moore D, Farrell B, Schimmel LD, Altman RJ, Abrahams C, Bliss MC, Polivy L, Sterling J. Is there a useful cesarean birth measure? Assessment of the nulliparous term singleton vertex cesarean birth rate as a tool for obstetric quality improvement. Am J Obstet Gynecol. 2006 Jun;194(6):1644-51; discussion 1651-2. PubMed

Main EK. Reducing cesarean birth rates with data-driven quality improvement activities. Pediatrics. 1999 Jan;103(1 Suppl E):374-83. PubMed

Menacker F. Trends in cesarean rates for first births and repeat cesarean rates for low-risk women: United States, 1990-2003. Natl Vital Stat Rep. 2005 Sep 22;54(4):1-8. PubMed

Specifications manual for Joint Commission national quality measures, version 2016A. Oakbrook Terrace (IL): The Joint Commission; Effective 2016 Jul 1. various p.

Utilization rates for selected medical procedures in California hospitals. [internet]. California Office of Statewide Hospital Planning and Development; 2006 [accessed 2007 Nov 01].

Primary Health Components

Cesarean birth

Denominator Description

Nulliparous patients delivered of a live term singleton newborn in vertex presentation (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Patients with cesarean births (see the related "Numerator Inclusions/Exclusions" field)

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

- The growing support for the claim that provider-dependent indications are contributing to the overall increase among cesareans can be seen from the results of two recent studies examining the drivers for the increase in cesarean deliveries. Barber et al. (2011) at Yale analyzed primary and repeat cesareans from 2003 to 2009. Among primary cesarean deliveries, more subjective indications (non-reassuring fetal status and arrest of dilation) contributed larger proportions than more objective indications (malpresentation, maternal-fetal, and obstetric conditions). Similarly, Getahun et al. (2009) examined the causes for the rise in cesarean deliveries among different racial and ethnic groups in Kaiser Permanente Southern California over the last 17 years. Their findings were similar to those from Yale. In a retrospective cohort study conducted by Ehrenthal, Jiang, and Strobino (2010), labor induction was associated with a twofold increase in the odds of a cesarean delivery after adjustment for confounders. This was more pronounced among a low-risk group of women without major complications.
- Beyond the medical burden to mothers and babies, the financial burden on payers is large: facility charges for cesarean are nearly twice that for vaginal delivery ($24,700 vs. $14,500). In California alone, the additional heath care costs to the system are conservatively estimated to be over $300 million annually (Main et al., 2011).
- The most frequent causes of severe maternal morbidity are obstetric hemorrhage (bleeding) and uterine infection. These are significantly more common with cesarean surgery and also represent the two leading causes of hospital readmission in the first 30 days post delivery. A recent Centers for Disease Control and Prevention (CDC) analysis showed that the rate of severe obstetric hemorrhage has significantly increased (by 50%) over the last 15 years in the U.S. There has also been a 270% increase in blood transfusions, with both hemorrhage and transfusions correlated to the rise in cesarean deliveries. Infection is the most common serious complication of cesarean delivery with typical rates of 3% to 9% (Kuklina et al., 2009).
- The American College of Obstetrics and Gynecology (ACOG) report "Evaluation of Cesarean Delivery" (2000) recognizes the importance of the nulliparous, term singleton vertex (NTSV) population as the optimal focus for measurement and quality improvement action. Furthermore, the report identified a target of 15.5% for NTSV births, one recommended by the National Center for Health Statistics. Although the ACOG target rate was directed at the NTSV cesarean delivery rate, the recommendation

has been widely misread as recommending a 15.5% total cesarean delivery rate.

- In its 2000 report, ACOG formally recommended that NTSV cesarean delivery rate be used to benchmark all U.S. hospitals and practitioners. This measure and target was then endorsed by the United States Healthy People 2010 objectives: 16-9. This same measure has been reaffirmed in Healthy People 2020 (MICH-7.1) but with a more modest target of a 23.9% NTSV rate.

Evidence for Additional Information Supporting Need for the Measure

American College of Obstetricians and Gynecologists, Task Force on Cesarean Delivery Rates. Evaluation of cesarean delivery. Washington (DC): American College of Obstetricians and Gynecologists; 2000. 63 p.

Barber EL, Lundsberg LS, Belanger K, Pettker CM, Funai EF, Illuzzi JL. Indications contributing to the increasing cesarean delivery rate. Obstet Gynecol. 2011 Jul;118(1):29-38. PubMed

Ehrenthal DB, Jiang X, Strobino DM. Labor induction and the risk of a cesarean delivery among nulliparous women at term. Obstet Gynecol. 2010 Jul;116(1):35-42. PubMed

Getahun D, Strickland D, Lawrence JM, Fassett MJ, Koebnick C, Jacobsen SJ. Racial and ethnic disparities in the trends in primary cesarean delivery based on indications. Am J Obstet Gynecol. 2009 Oct;201(4):422.e1-7. PubMed

Kuklina EV, Meikle SF, Jamieson DJ, Whiteman MK, Barfield WD, Hillis SD, Posner SF. Severe obstetric morbidity in the United States: 1998-2005. Obstet Gynecol. 2009 Feb;113(2 Pt 1):293-9. PubMed

Main EK, Morton CH, Hopkins D, Giuliani G, Melsop K, Gould JB. Cesarean deliveries, maternal outcomes, and opportunities for change in California. Palo Alto (CA): California Maternal Quality Care Collaborative (CMQCC); 2011.

U.S. Department of Health and Human Services (DHHS). Healthy people 2010. [internet]. Washington (DC): 2000 [accessed 2011 Sep 26].

U.S. Department of Health and Human Services (DHHS). Healthy people 2020. [internet]. Washington (DC): 2010 [accessed 2011 Sep 26].

Extent of Measure Testing

Twenty-six contracted performance measurement systems (PMS) agreed to support the perinatal care measures. Joint Commission staff defined and developed a database structure for electronic receipt of measure data and a verification process was implemented to assure that measures were embedded into the measurement system's technical infrastructures and into their data collection tools in accord with Joint Commission specifications. Joint Commission staff also verified data collection tools and provided education regarding the performance measure set to PMS vendors, who in turn provided education and ongoing support to their contracted hospitals.

Once sufficient data to support this effort were received by The Joint Commission, a reliability assessment of the measures and individual data elements was conducted from October 2011 through January 2012. A data collection tool was developed to facilitate the reabstraction of selected medical records and assessment of the reliability of the data elements. Reliability test site visits were conducted by Joint Commission staff at a subset of 12 randomly-selected hospitals. Selection of the sites was based on multiple characteristics, including hospital demographics, bed size and type of facility.

In the course of the reliability site visits, electronic and paper medical records were blindly reabstracted by Joint Commission staff. Reabstracted data elements were then compared with the hospital's originally abstracted data on a data element to data element basis. Differences in abstraction were investigated and adjudicated in order to understand the reasons for any disparities. In addition, structured focus group discussions were held at each site to gather additional feedback on the measures. A resource evaluation was also completed by the site visit hospitals to assess the cost and time associated with data collection effort. Feedback from the focus group discussions has been incorporated into the measure summaries.

Evidence for Extent of Measure Testing

Domzalski K. (Associate Project Director, Division of Healthcare Quality Evaluation, Department of Quality Measurement, The Joint Commission, Oakbrook Terrace, IL). Personal communication. 2013 Sep 20.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Hospital Inpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Specified

Target Population Age

8 years to 64 years

Target Population Gender

Female (only)

National Strategy for Quality Improvement in Health Care

National Quality Strategy Priority

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Not within an IOM Care Need

IOM Domain

Not within an IOM Domain

Data Collection for the Measure

Case Finding Period

Discharges July 1 through December 31

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Institutionalization

Patient/Individual (Consumer) Characteristic

Therapeutic Intervention

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions
Nulliparous patients with *International Classification of Diseases, Tenth Revision, Procedure Coding System (ICD-10-PCS) Principal Procedure Code* or *ICD-10-PCS Other Procedure Codes* for delivery (as defined in the appendices of the original measure documentation) and *International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Principal Diagnosis Code* or *ICD-10-CM Other Diagnosis Codes* for outcome of delivery (as defined in the appendices of the original measure documentation) and with a delivery of a newborn with 37 weeks or more of gestation completed

Exclusions

ICD-10-CM Principal Diagnosis Code or *ICD-10-CM Other Diagnosis Codes* for multiple gestations and other presentations (as defined in the appendices of the original measure documentation)
Less than 8 years of age
Greater than or equal to 65 years of age
Length of Stay (LOS) greater than 120 days
Gestational age less than 37 weeks or unable to determine (UTD)

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
Patients with *International Classification of Diseases, Tenth Revision, Procedure Code System (ICD-10-PCS) Principal Procedure Code* or *ICD-10-PCS Other Procedure Codes* for cesarean birth (as defined in the appendices of the original measure documentation)

Exclusions
None

Numerator Search Strategy

Institutionalization

Data Source

Administrative clinical data

Paper medical record

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

- Perinatal Care (PC) Initial Patient Population Algorithm Flowchart
- PC-02: Cesarean Birth Flowchart

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Does not apply to this measure (i.e., there is no pre-defined preference for the measure score)

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

PC-02: Cesarean birth.

Measure Collection Name

National Quality Core Measures

Measure Set Name

Perinatal Care

Submitter

The Joint Commission - Health Care Accreditation Organization

Developer

The Joint Commission - Health Care Accreditation Organization

Funding Source(s)

No external funding was received.

Composition of the Group that Developed the Measure

The Perinatal Care Technical Advisory Panel (PC TAP) recommended which National Quality Forum (NQF)-endorsed Perinatal Care measures should be included in the set. Members of the PC TAP are enumerated at: http://www.jointcommission.org/assets/1/18/TAP_Members_Web_List.pdf .

Financial Disclosures/Other Potential Conflicts of Interest

Expert panel members have made full disclosure of relevant financial and conflict of interest information in accordance with National Quality Forum (NQF) and The Joint Commission's Conflict of Interest policies, copies of which are available upon written request to The Joint Commission.

Endorser

National Quality Forum - None

NQF Number

not defined yet

Date of Endorsement

2014 May 1

Core Quality Measures

Obstetrics and Gynecology

Adaptation

This Perinatal Care measure has been adapted from the following National Quality Forum (NQF)-endorsed measure:

> Cesarean Rate for Low-risk First Birth Women (aka NTSV CS Rate) [California Maternal Quality Care Collaborative]

Date of Most Current Version in NQMC

2016 Jul

Measure Maintenance

Every six months

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

This measure updates a previous version: Specifications manual for Joint Commission national quality core measures, version 2015B. Oakbrook Terrace (IL): The Joint Commission; Effective 2015 Oct 1. 327 p.

Measure Availability

Source available from The Joint Commission Web site .

For more information, contact The Joint Commission at One Renaissance Blvd., Oakbrook Terrace, IL 60181; Phone: 630-792-5800; Fax: 630-792-5005; Web site: www.jointcommission.org .

NQMC Status

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Production

Source(s)

Specifications manual for Joint Commission national quality measures, version 2016A. Oakbrook Terrace (IL): The Joint Commission; Effective 2016 Jul 1. various p.

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